

## Barley

### Barley Grades and Grade Requirements\*

Barley is divided into two classes: Malting barley and Barley. The class Malting barley is divided into three subclasses: Six-Rowed Malting Barley, Six-Rowed Blue Malting barley, and Two-Rowed Malting barley. The class Barley is divided

into three subclasses: Six Rowed barley, Two-Rowed barley, and Barley. The applicant for service may request either the malting standards or barley standards for malting types.

\* The United States Standards for Barley were revised effective June 1, 1997. The former standards appear in the *1996 U.S. Grain Exports: Quality Report*.

### Grades and grade requirements for Six-rowed Malting barley and Six-rowed Blue Malting barley

Grade	Minimum limits of-			Maximum limits of-				
	Test weight per bushel (pounds)	Suitable malting type (percent)	Sound barley <sup>1</sup> (percent)	Damaged kernels <sup>1</sup> (percent)	Foreign Material (percent)	Other grains (percent)	Skinned and broken kernels (percent)	Thin barley <sup>2</sup> (percent)
U.S. No. 1	47.0	95.0	97.0	2.0	0.5	2.0	4.0	7.0
U.S. No. 2	45.0	95.0	94.0	3.0	1.0	3.0	6.0	10.0
U.S. No. 3	43.0	95.0	90.0	4.0	2.0	5.0	8.0	15.0
U.S. No. 4	43.0	95.0	87.0	5.0	3.0	5.0	10.0	15.0

<sup>1</sup> Injured-by-frost kernels and injured-by-mold kernels are not considered damaged kernels or considered against sound barley.

<sup>2</sup> Using a 5.5/64 x 3/4 slotted-hole sieve.

NOTE: Malting barley shall not be infested, blighted, ergoty, garlicky, smutty, or contain any special grades. Upon request, malting barley varieties may be inspected and graded in accordance with standards established for the class Barley.

Six-rowed Malting and Six-rowed Blue Malting barley that does not meet the requirements for U.S. Nos. 1, 2, 3, or 4 Malting shall be graded under the Barley standards.

## Grades and grade requirements for Two-rowed Malting barley

Grade	Minimum limits of-			Maximum limits of-			
	Test weight per bushel (pounds)	Suitable malting type (percent)	Sound barley <sup>1</sup> (percent)	Wild Oats (percent)	Foreign Material (percent)	Skinned and broken kernels (percent)	Thin barley <sup>2</sup> (percent)
U.S. No. 1	50.0	97.0	98.0	1.0	0.5	5.0	5.0
U.S. No. 2	48.0	97.0	98.0	1.0	1.0	7.0	7.0
U.S. No. 3	48.0	95.0	96.0	2.0	2.0	10.0	10.0
U.S. No. 4	48.0	95.0	93.0	3.0	3.0	10.0	10.0

1 Injured-by-frost kernels and injured-by-mold kernels are not considered damaged kernels or considered against sound barley.

2 Using a 5.5/64 x 3/4 slotted-hole sieve.

NOTE: Malting barley shall not be infested, blighted, ergoty, garlicky, smutty, or contain any special grades. Upon request, malting barley varieties may be inspected and graded in accordance with standards established for the class Barley.

Two-rowed barley that does not meet the requirements for U.S. Nos. 1, 2, 3, or 4 Malting shall be graded under the Barley standards.

## Grades and grade requirements for Barley

Grade	Minimum limits of-		Maximum limits of-				
	Test weight per bushel (pounds)	Sound barley (percent)	Damaged kernels <sup>1</sup> (percent)	Heat-damaged kernels (percent)	Foreign Material (percent)	Broken kernels (percent)	Thin barley <sup>2</sup> (percent)
U.S. No. 1	47.0	97.0	2.0	0.2	1.0	4.0	10.0
U.S. No. 2	45.0	94.0	4.0	0.3	2.0	8.0	15.0
U.S. No. 3	43.0	90.0	6.0	0.5	3.0	12.0	25.0
U.S. No. 4	40.0	85.0	8.0	1.0	4.0	18.0	35.0
U.S. No. 5	36.0	75.0	10.0	3.0	5.0	28.0	75.0
U.S. Sample Grade							

U.S. Sample grade shall be barley that:

- (a) Does not meet the requirements for the grades U.S. No. 1, 2, 3, 4, or 5; or
- (b) Contains 8 or more stones or any number of stones which have an aggregate weight in excess of 0.2 percent of the sample weight, 2 or more pieces of glass, 3 or more crotalaria seeds (*Crotalaria* spp.), 2 or more castor beans (*Ricinus communis* L.), 4 or more particles of an unknown foreign substance(s) or a commonly recognized harmful or toxic substance(s), 8 or more cocklebur (*Xanthium* spp.) or similar seeds singly or in combination, 10 or more rodent pellets, bird droppings, or equivalent quantity of other animal filth per 1-1/8 to 1-1/4 quarts of barley; or
- (c) Has a musty, sour, or commercially objectionable foreign odor (except smut or garlic odor); or
- (d) Is heating or otherwise of distinctly low quality.

1 Includes heat-damaged kernels. Injured-by-frost kernels and injured-by-mold kernels are not considered damaged kernels.

2 Using a 5/64 x 3/4 slotted-hole sieve.

## Barley

### Definitions

**Test weight (lb/bu)** is pounds of grain per Winchester bushel as determined using an approved device on a dockage-free barley sample.

**Test weight (kg/hl)** is the metric system equivalent to pounds per bushel. Kilograms per hectoliter are calculated by multiplying pounds per bushel by 1.287.

**Heat-damaged kernels** are kernels and pieces of barley kernels, other grains, and wild oats that are materially discolored and damaged by heat.

**Damaged kernels** are kernels, pieces of barley kernels, other grains, and wild oats that are badly ground-damaged, badly weather-damaged, diseased, frost-damaged, germ-damaged, heat-damaged, injured-by-heat, insect-bored, mold-damaged, sprout-damaged, or otherwise materially damaged.

**Foreign material** is all matter other than barley, other grains, and wild oats that remains in the sample after removal of dockage.

**Skinned and broken kernels** are barley kernels that have one-third or more of the hull removed, or that the hull is loose or missing over the germ, or broken kernels, or whole kernels that have a part or all of the germ missing.

**Dockage** is all matter other than barley that can be removed from the original sample by use of an approved device. Also, underdeveloped, shriveled, and small pieces of barley kernels removed by properly separating the material other than barley and that cannot be recovered by properly rescreening or recleaning.

**Moisture** is the water content of grain as determined by an approved moisture meter. The percentage of moisture in a sample does not affect the numerical grade.

**Suitable malting type** are varieties of malting barley that are recommended by the American Malting Barley Association and any other proprietary malting type(s) used by the malting and brewing industries.

**Sound barley** is kernels and pieces of barley kernels that are not damaged.

**Thin barley** is :

Six-rowed Malting barley that passes through a 5/64 x 3/4 slotted-hole sieve and Two-rowed Malting barley that passes through a 5.5/64 x 3/4 slotted-hole sieve.

Six-rowed barley, Two-rowed barley, or Barley that passes through a 5/64 x 3/4 slotted-hole sieve.

**Table 16. U.S. Barley Exports: Number of lots and quantity exported by class and grade, 2001-2003**

Class	Grade	2001		2002		2003	
		Number of Lots	Metric Tons	Number of Lots	Metric Tons	Number of Lots	Metric Tons
	U.S.No. 2	56	610,061	37	302,912	35	434,022
	U.S.No. 3	10	77,852	--	--	5	60,574
	U.S.No. 4	3	24,960	10	34,703	4	12,805
	All lots	69	712,873	47	337,615	44	507,401

-- = No lots reported in this category.

Table 17. Summary of export Barley quality, 2001-2003

Factor	Grade	Grade Limit	2001				2002				2003			
			No. of Lots	Avg.	Low	High	No. of Lots	Avg.	Low	High	No. of Lots	Avg.	Low	High
Test Weight (lb/bu)	U.S. No. 2	45.0	56	51.8	46.0	55.6	37	52.6	50.1	58.5	35	51.0	49.5	53.4
	U.S. No. 3	43.0	10	49.9	46.3	52.5	--	--	--	--	5	51.3	50.0	54.1
	U.S. No. 4	43.0	3	52.9	52.3	53.1	10	54.3	51.7	56.3	4	52.8	51.1	56.0
	All lots	N/A	69	51.6	46.0	55.6	47	52.8	50.1	58.5	44	51.1	49.5	56.0
Test Weight (kg/hl)	U.S. No. 2	N/A	56	66.7	59.2	71.6	37	67.7	64.4	75.3	35	65.7	63.7	68.7
	U.S. No. 3	N/A	10	64.2	59.6	67.6	--	--	--	--	5	66.0	64.4	69.6
	U.S. No. 4	N/A	3	68.1	67.3	68.4	10	69.8	66.6	72.4	4	68.0	65.8	72.1
	All lots	N/A	69	66.5	59.2	71.6	47	67.9	64.4	75.3	44	65.8	63.7	72.1
Moisture	U.S. No. 2	N/A	56	11.0	9.8	12.9	37	10.8	9.9	12.0	35	10.7	9.7	11.6
	U.S. No. 3	N/A	10	11.6	10.6	12.7	--	--	--	--	5	11.0	10.6	11.3
	U.S. No. 4	N/A	3	12.8	12.4	13.0	10	11.7	10.8	13.1	4	12.7	11.2	13.4
	All lots	N/A	69	11.1	9.8	13.0	47	10.9	9.9	13.1	44	10.8	9.7	13.4
Heat-damaged Kernels	U.S. No. 2	0.3	56	0.0	0.0	0.0	37	0.0	0.0	0.0	35	0.0	0.0	0.0
	U.S. No. 3	0.5	10	0.0	0.0	0.0	--	--	--	--	5	0.0	0.0	0.0
	U.S. No. 4	1.0	3	0.0	0.0	0.0	10	0.0	0.0	0.0	4	0.0	0.0	0.0
	All lots	N/A	69	0.0	0.0	0.0	47	0.0	0.0	0.0	44	0.0	0.0	0.0
Damaged Kernels (Total)	U.S. No. 2	4.0	56	0.3	0.0	1.2	37	0.3	0.0	2.5	35	0.3	0.0	1.3
	U.S. No. 3	6.0	10	1.0	0.2	2.8	--	--	--	--	5	0.3	0.0	0.6
	U.S. No. 4	8.0	3	0.2	0.2	0.3	10	0.1	0.0	0.5	4	0.3	0.1	0.3
	All lots	N/A	69	0.4	0.0	2.8	47	0.3	0.0	2.5	44	0.3	0.0	1.3
Foreign Material	U.S. No. 2	2.0	56	0.1	0.0	0.3	37	0.1	0.0	0.7	35	0.1	0.0	0.4
	U.S. No. 3	3.0	10	0.1	0.0	0.3	--	--	--	--	5	0.1	0.0	0.1
	U.S. No. 4	4.0	3	0.0	0.0	0.1	10	0.0	0.0	0.1	4	0.0	0.0	0.1
	All lots	N/A	69	0.1	0.0	0.3	47	0.1	0.0	0.7	44	0.1	0.0	0.4
Sound Barley	U.S. No. 2	94.0	56	98.7	95.0	100.0	37	99.0	96.4	100.0	35	98.8	96.7	99.9
	U.S. No. 3	90.0	10	97.5	96.2	99.3	--	--	--	--	5	99.5	99.3	99.8
	U.S. No. 4	87.0	3	99.5	99.3	99.6	10	99.6	99.2	100.0	4	99.6	99.3	99.9
	All lots	N/A	69	98.6	95.0	100.0	47	99.1	96.4	100.0	44	98.9	96.7	99.9
Thin Barley	U.S. No. 2	15.0	56	7.5	2.8	14.0	37	7.4	3.4	13.5	35	8.5	3.2	14.3
	U.S. No. 3	15.0	10	13.5	9.8	19.9	--	--	--	--	5	7.8	7.0	9.5
	U.S. No. 4	15.0	3	0.6	0.0	1.0	10	1.4	0.2	7.6	4	0.6	0.2	1.1
	All lots	N/A	69	7.9	0.0	19.9	47	6.8	0.2	13.5	44	8.2	0.2	14.3

-- = No lots reported in this category.

continued

**Table 17. Summary of export Barley quality, 2001-2003 -- Continued**

Factor	Grade	Grade Limit	2001				2002				2003			
			No. of Lots	Avg.	Low	High	No. of Lots	Avg.	Low	High	No. of Lots	Avg.	Low	High
<b>Broken Kernels</b>	<b>U.S. No. 2</b>	8.0	56	0.0	0.0	0.0	37	0.0	0.0	0.0	35	0.0	0.0	0.0
	<b>U.S. No. 3</b>	12.0	10	0.0	0.0	0.0	--	--	--	--	5	0.0	0.0	0.0
	<b>U.S. No. 4</b>	12.0	3	0.0	0.0	0.0	10	0.0	0.0	0.0	4	0.0	0.0	0.0
	<b>All lots</b>	N/A	69	0.0	0.0	0.0	47	0.0	0.0	0.0	44	0.0	0.0	0.0
<b>Dockage</b>	<b>U.S. No. 2</b>	N/A	56	1.2	0.1	2.0	37	1.0	0.3	1.6	35	1.0	0.1	1.3
	<b>U.S. No. 3</b>	N/A	10	1.6	1.3	2.3	--	--	--	--	5	1.1	0.9	1.3
	<b>U.S. No. 4</b>	N/A	3	0.1	0.1	0.1	10	0.2	0.1	0.4	4	0.2	0.1	0.3
	<b>All lots</b>	N/A	69	1.2	0.1	2.3	47	0.9	0.1	1.6	44	1.0	0.1	1.3

N/A = Does not apply.

-- = No lots reported in this category.